

REMARKS

Applicant respectfully requests reconsideration of this application in view of the foregoing amendments and following remarks.

Status of the Claims

Claims 1-106 were previously pending in this application. Claims 2-4, 6, 37-39, 41, 72-74 and 76 have been canceled without prejudice or disclaimer. Claims 1, 5, 7, 32, 33, 35, 36, 40, 42-45, 48, 49, 52, 53, 56, 57, 60, 61, 64, 67-71, 75, 77-80, 83, 84, 87, 88, 91, 92, 95, 96, 99 and 102-106 are herein amended. Applicant submits no new matter has been added by this Amendment.

Drawing Objections

The Office Action indicates that Figures 28-34 should be designated by a legend such as --Prior Art--. Applicant has enclosed a copy of Figs. 28-34 marked up in red-ink indicating Figs. 28-34 as "Prior Art." Upon approval of the proposed amended figures, Applicant request substitution of the enclosed formal drawings incorporating the proposed amendments to Figs. 28-34, for the originally filed Figs. 28-34.

Claim Objections

Claims 3, 4, 38, 39, 73 and 74 have been objected to under 37 CFR § 1.75(d)(1), as allegedly failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery. In order to expedite the prosecution of the above-referenced application, Applicant has canceled claims 3, 4, 38, 39, 73 and 74 without prejudice or disclaimer. Therefore, Applicant respectfully submits that the claim objections have been overcome.

Rejection under 35 U.S.C. §103

Claims 1-3, 7, 36-38 42, 71-73, 77 have been rejected under 35 U.S.C. § 103(a), as being unpatentable over Edgar, (US Patent No. 5,266,805) ("Edgar"), in view of Florent (US

Patent No. 5,832,111) ("Florent"). Claims 4, 39 and 74 have been rejected under 35 U.S.C. § 103(a), as being unpatentable over Edgar, in view of Florent, and in further view of Hirota, et al. (US Patent No. 5,832,111) ("Hirota, et al"). Claims 5, 40 and 75 have been rejected under 35 U.S.C. § 103(a), as being unpatentable over Edgar and Florent, as applied to claims 1, 36 and 71 above and in further view of Beatty et al. (US Patent No. 5, 325,443) ("Beatty, et al."). Claims 6, 41 and 76 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Edgar, Florent and Beatty as applied to claims 5, 40 and 75 above and further in view of Hirota (US Patent No. 5,357,353) ("Hirota"). Claims 8-13, 22-25, 43-48, 57-60, 78-83 and 92-95 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Edgar and Florent, as applied to claims 7, 42 and 77 above, and further in view of Nichani, et al. (US Patent No. 5,949,905) ("Nichani, et al."). Claims 14-17, 49-52 and 84-87 have been rejected under 35 U.S.C. §103(a), as being unpatentable over Edgar and Florent, as applied to claims 7, 42 and 77 above and further in view of Farrell, et al. (US Patent No. 6,222,642) ("Farrell, et al."). Claims 18-21, 53-56 and 88-91 have been rejected under 35 U.S.C. §103(a), as being unpatentable over Edgar and Florent as applied to claims 7, 42 and 77 above and further in view of Xu, et al. (US Patent No. 6,341,172) ("Xu, et al."). Claims 29-31, 64-66 and 99-101 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Edgar and Florent, as applied to claims 7, 42, and 77 above and further in view of Ito, et al. (US Patent No. 5,555,318) ("Ito, et al."). Claims 32, 67 and 102 have been rejected under 35 U.S.C. §103(a), as being unpatentable over the combination of Edgar and Florent as applied to claims 1, 36 and 71 above and further in view of Maeda, et al. (US Patent Publication No. 2003/0128889). Claims 33, 34, 68, 69, 103 and 104 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Edgar and Florent, as applied to claims 1, 36 and 71 above and further in view of Young Jr. et al. (US Patent No. 6,707,557) ("Young Jr., et al."). Claims 35, 70 and 105 have been rejected under 35 U.S.C. §103(a), as being unpatentable over the combination of Edgar and Florent, as applied to claims 1, 36 and 71 above and further in view of Banton, et al. (US Patent No. 6,078,051).

Independent Claims 1, 36 and 71

Claim 1 has been amended to incorporate the claim elements from dependent claim 5. More specifically, amended independent claim 1 recites, *inter alia*, "A signal processing method...an edge correction step of performing edge correction of the infrared image signal and generating an edge-corrected infrared image signal....wherein an edge correction amount in the edge correction step is set in association with the deterioration of MTF due to chromatic aberration of an optical focusing system between visible light and infrared light."

According to claim 1, the infrared image signal undergoes edge correction and a threshold value is calculated based on the edge-corrected infrared image signal. Thereafter, the infrared image signal is compared with the threshold value and infrared signal components which are not more than the threshold are extracted. The interpolation of a visible image signal is corrected on the basis of the extracted infrared image signal components. The edge correction amount used to perform the edge correction is set in association with the deterioration of MTF due to chromatic aberration of an optical focusing system between visible light and infrared light. In this manner, when the sharpness of the dust on the transparent document impairs due to the chromatic aberration of a lens, it is possible to properly correct the sharpness.

As noted by the Examiner in pages 4-5 of the pending Office Action, Edgar, Florent and Beatty fail to disclose that the amount of edge correction is set in association with MTF deterioration due to chromatic aberration.

Hirota discloses detecting edge enhancement amount by subjecting read image data to a secondary derivative filter and perform edge enhancement. Since the edge enhancement amount is determined based on the read image data, not on a lens used in the image read apparatus, Hirota does not disclose, teach or suggest the edge correction step which performs edge correction using an edge correction amount set in association with the deterioration of MTF uniquely determined based on the characteristics of the optical focusing system.

Accordingly, Applicant submits that amended independent claim 1 is patentably distinct from the cited references for at least this reason. Further, Applicant submits that

amended independent claims 36 and 71 are patentably distinct from the cited references for at least a similar reason. Applicant submits that claims 5, 40, and 75, which are directly or indirectly dependent on claims 1, 36 and 71 respectively, are also patentably distinct from the cited reference for at least a similar reason.

Independent Claims 32, 67, 102 and 106

Amended independent claim 32 recites, "the infrared image signal is segmented into a plurality of blocks, and calculation of the threshold value and the correction of the visible image signal are performed for each blocks." The reason for performing the calculation and the correction for each block is that there may be shading in the infrared image, and appropriate threshold value is different for different area of the infrared image. In this method, dust portion can be more precisely extracted.

As the Examiner indicates in page 7, paragraph 14 in the Office Action, Edgar and Florent fail to disclose, teach or suggest the process of segmenting an image into a plurality of blocks. Further, Maeda discloses dividing an infrared image into a plurality of blocks. However, each block is compared to a first IR luminance level, which is constant throughout the image. In this manner, Maeda cannot disclose the shading of the infrared image different from the claimed invention.

Accordingly, Applicant submits that amended independent claim 32 is patentably distinct from the cited references for at least this reason. Further, Applicant submits that amended independent claims 67, 102 and 106 are patentably distinct from the cited references for at least a similar reason. Applicant submits that claims 7-31, 42-66 and 77-101, which are directly or indirectly dependent on claims 32, 67, 102, and 106 respectively, are also patentably distinct from the cited reference for at least a similar reason.

Independent Claims 33, 68 and 103

Amended independent claim 33 recites, *inter alia*, “a detection step of detecting signal components corresponding to a holder for holding the transparent document from the infrared image signal....” Also, as in amended independent claim 33, if a holder is detected, the signal components due to the holder are replaced by a predetermined value. Accordingly, it is possible to eliminate the effect of the threshold value of the signal components of the holder.

The Examiner indicates in pages 7-8, ¶ 15 in the Office Action that Edgar and Florent fail to disclose replacing the signal components due to the holder by a predetermined value. The Examiner relies on Young to remedy this deficiency. However, Young discloses calculating an average or an equivalent of signal values obtained from unexposed regions of film 60 to reduce or eliminate high frequency defects from the unexposed regions. Using the average or the equivalent signal, Young ensures that image data captured in the y-direction is spatially uniform. Thus, Young does not replace the high frequency defects with a predetermined signal.

Further, the Examiner alleges that the unexposed regions of the film corresponds to a holder as recited in the claim, however, we respectfully disagree. The unexposed region of the film is disclosed in claim 15 of Young. However, Young does not disclose, teach or suggest that the unexposed region of the film includes the holder. Generally, the unexposed region of the film (the orange portion if the film is a negative film) indicates the front or end portion of the film where no exposure is performed. Thus, Applicant submits that Young does not teach or suggest “a replacement step of replacing, when the signal components corresponding to the holder are detected in the detection step, the signal components by a predetermined signal value,” as recited in independent claim 33.

Accordingly, Applicant submits that amended independent claim 33 is patentably distinct from the cited references for at least this reason. Further, Applicant submits that amended independent claims 68 and 103 are patentably distinct from the cited references for at least a similar reason. Applicant submits that claims 34, 69 and 104, which are directly or indirectly dependent on claims 33, 68 and 103 respectively, are also patentably distinct from the

cited reference for at least a similar reason.

Independent Claims 35, 70 and 105

Amended independent claim 35 recites, *inter alia*, “a detection step of detecting signal components corresponding to a holder for holding the transparent document from the infrared image signal....” Also, as in amended independent claim 35, if a signal components corresponding to the holder are detected in the detection step, removing the signal components.

As indicated by the Examiner in ¶ 16 on page 8 of the pending Office Action, Edgar and Florent fail to disclose removing the signal components due to the holder. The Examiner relies on Banton to remedy this deficiency. Banton discloses deleting background image data which falls outside the detected exterior edges of the document. However, Banton does not disclose, teach or suggest when the deletion of background image data should be performed. If the detection and correction of the defect portion is performed first, and then the deletion of the background of image data is performed – it is not possible to eliminate the effect of the background image data on the threshold value. Therefore, Applicant submits that Banton does not remedy the deficiencies of Edgar and Florent regarding amended independent claim 35.

Accordingly, Applicant submits that amended independent claim 35 is patentably distinct from the cited references for at least this reason. Further, Applicant submits that amended independent claims 70 and 105 are patentably distinct from the cited references for at least a similar reason. Therefore, Applicant requests withdrawal of the rejections on these grounds.

PATENT

Application Serial No. 09/883,467
Amendment dated October 5, 2004
Reply to Office Action dated May 5, 2004
Docket No. 1232-4724

CONCLUSION

Applicant believes that all of the pending claims including the added claims are in condition for allowance and such action is respectfully requested.

AUTHORIZATION

No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicant hereby petitions the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 13-4500 (Order No. 1232-4724). **A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.**

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
MORGAN & FINNEGAN LLP

Dated: October 5, 2004

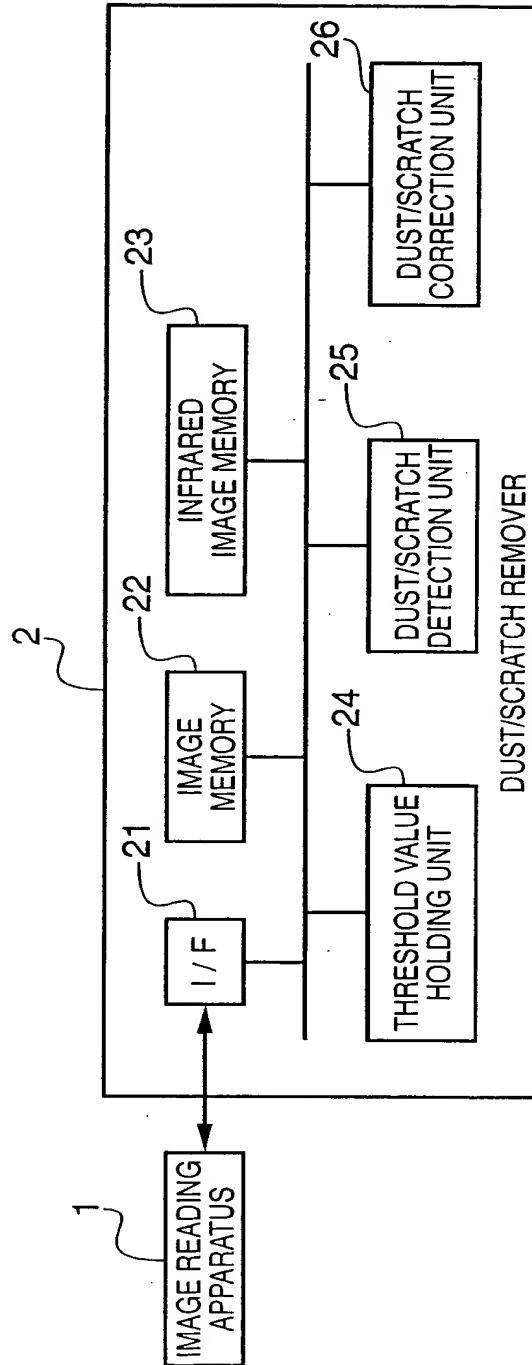
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FIG. 30

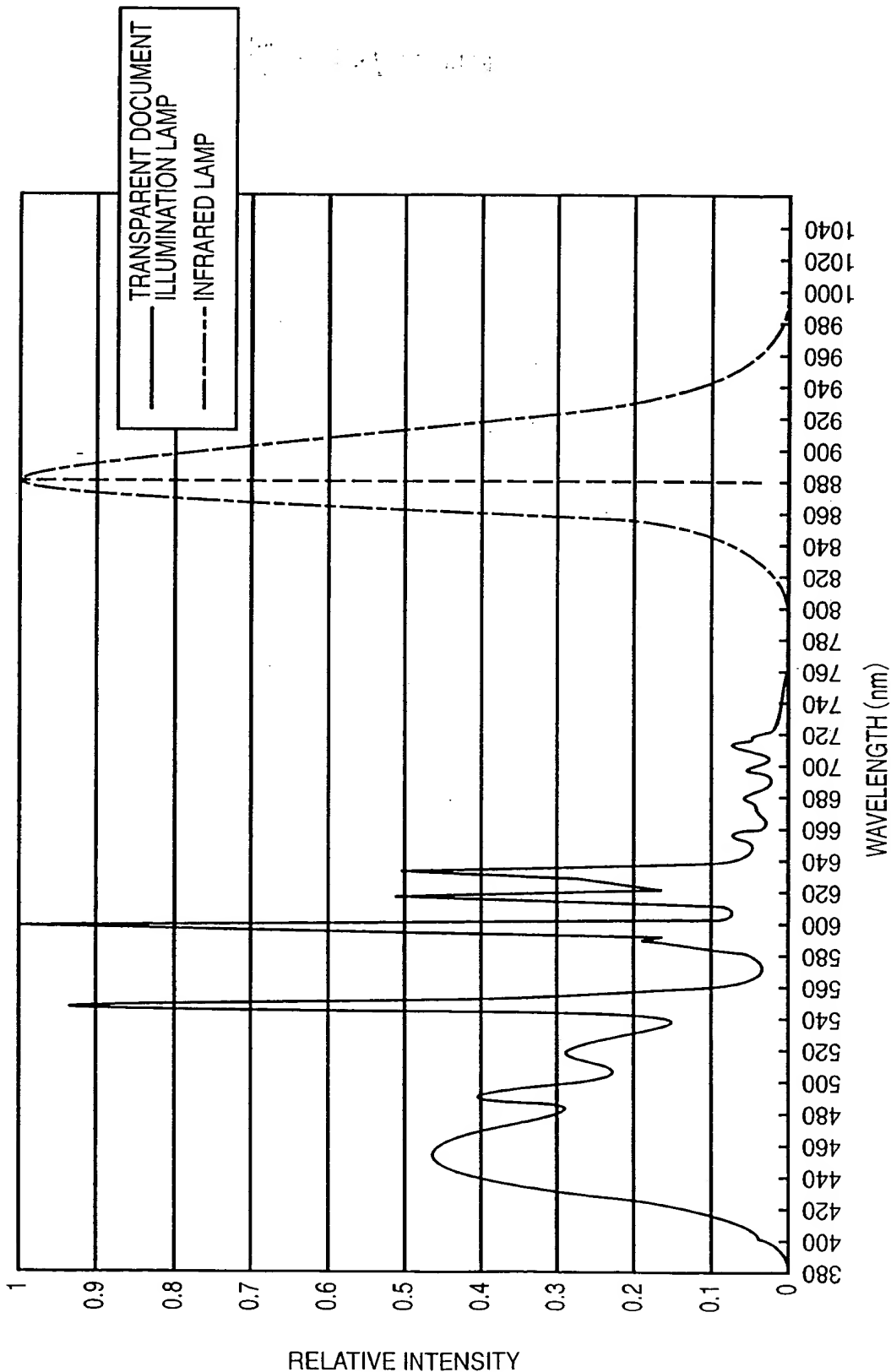


-- Prior Art --



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FIG. 31

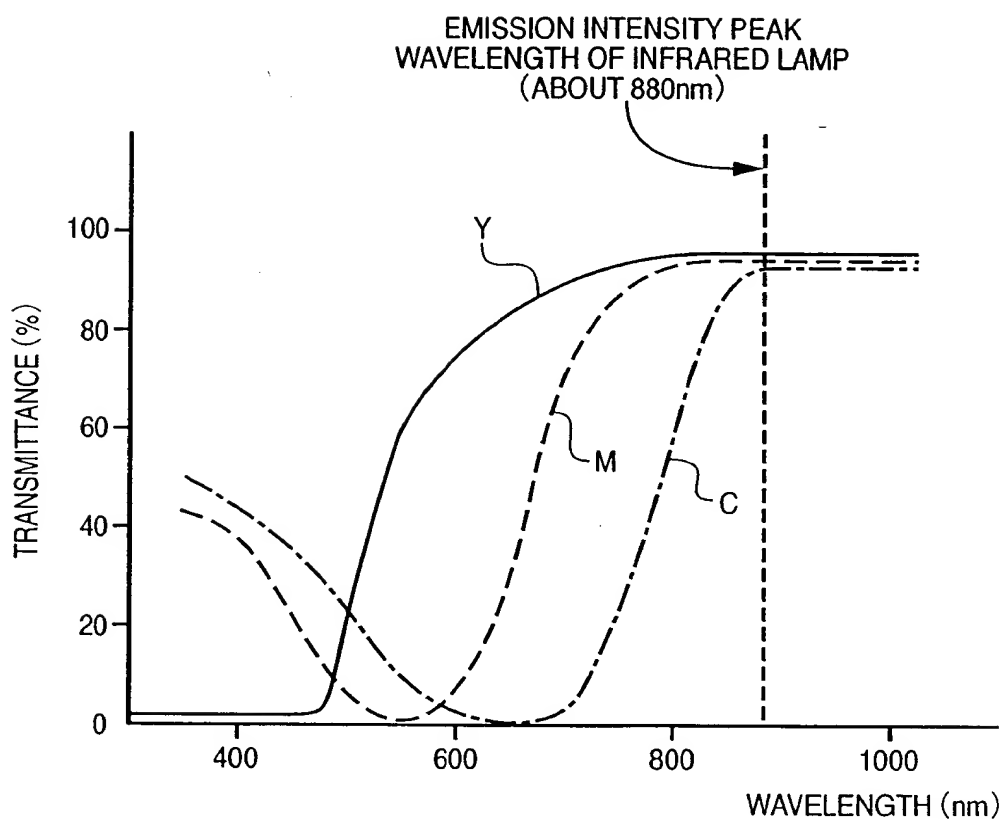


-- Prior Art --

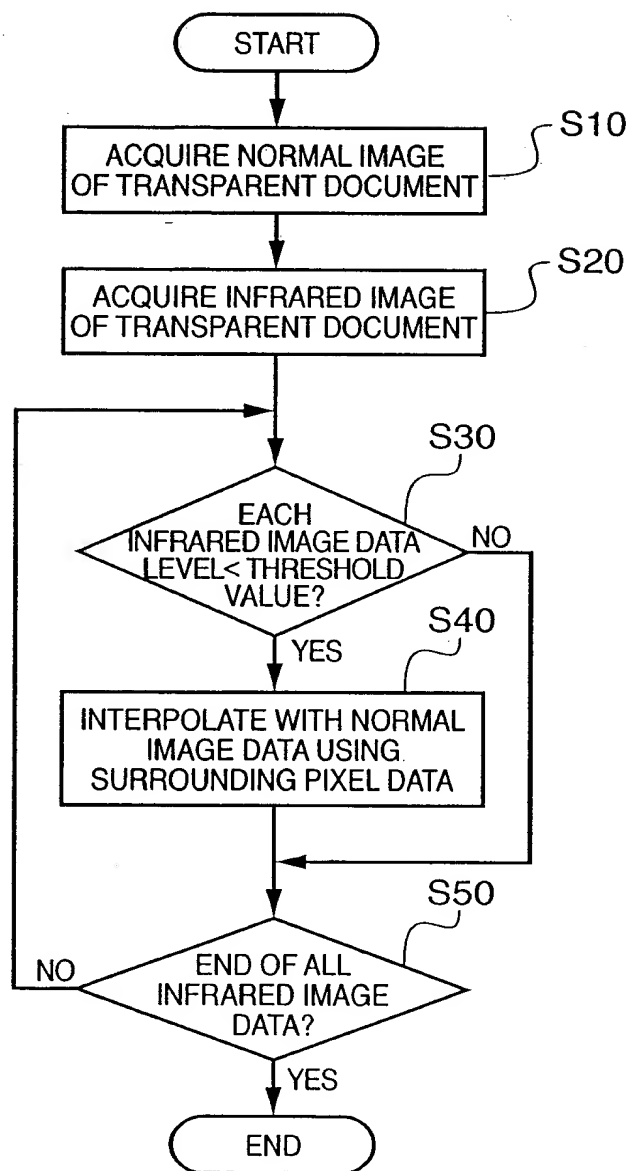


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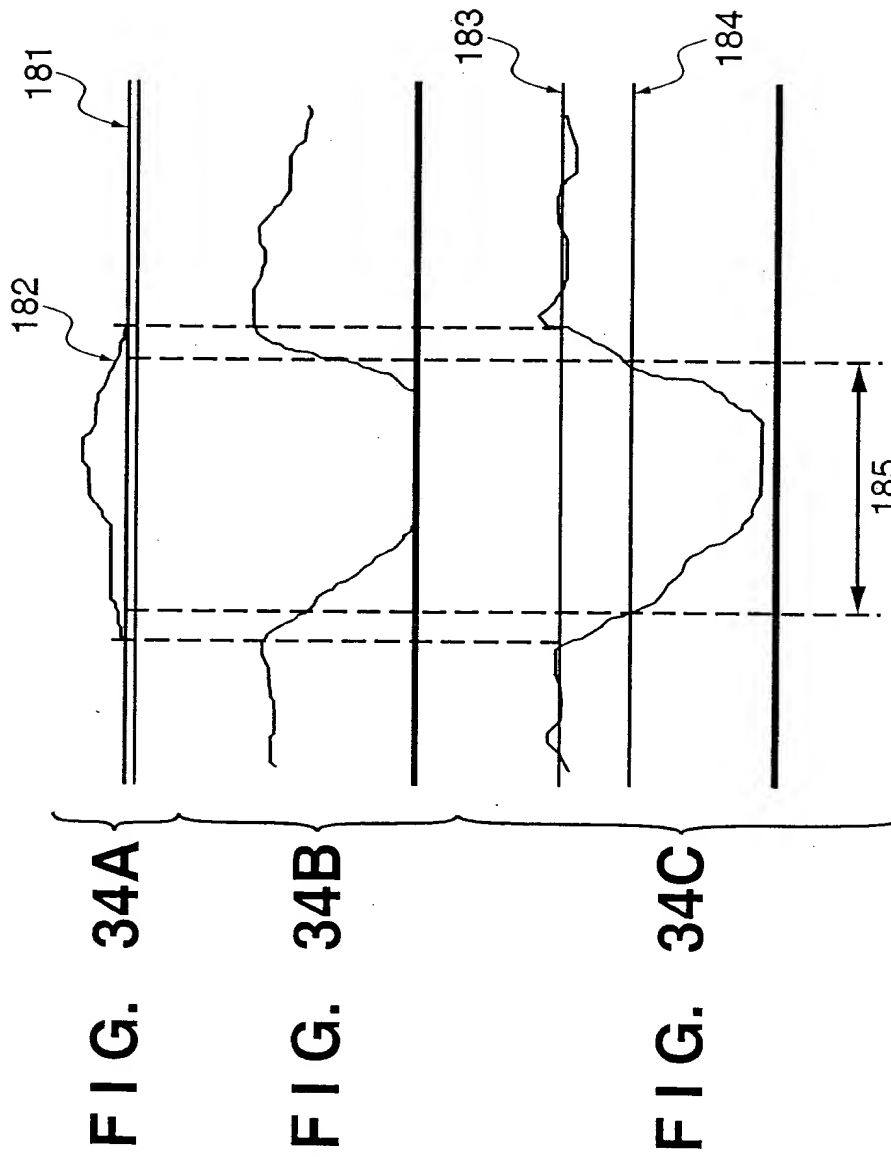
FIG. 32



-- Prior Art --

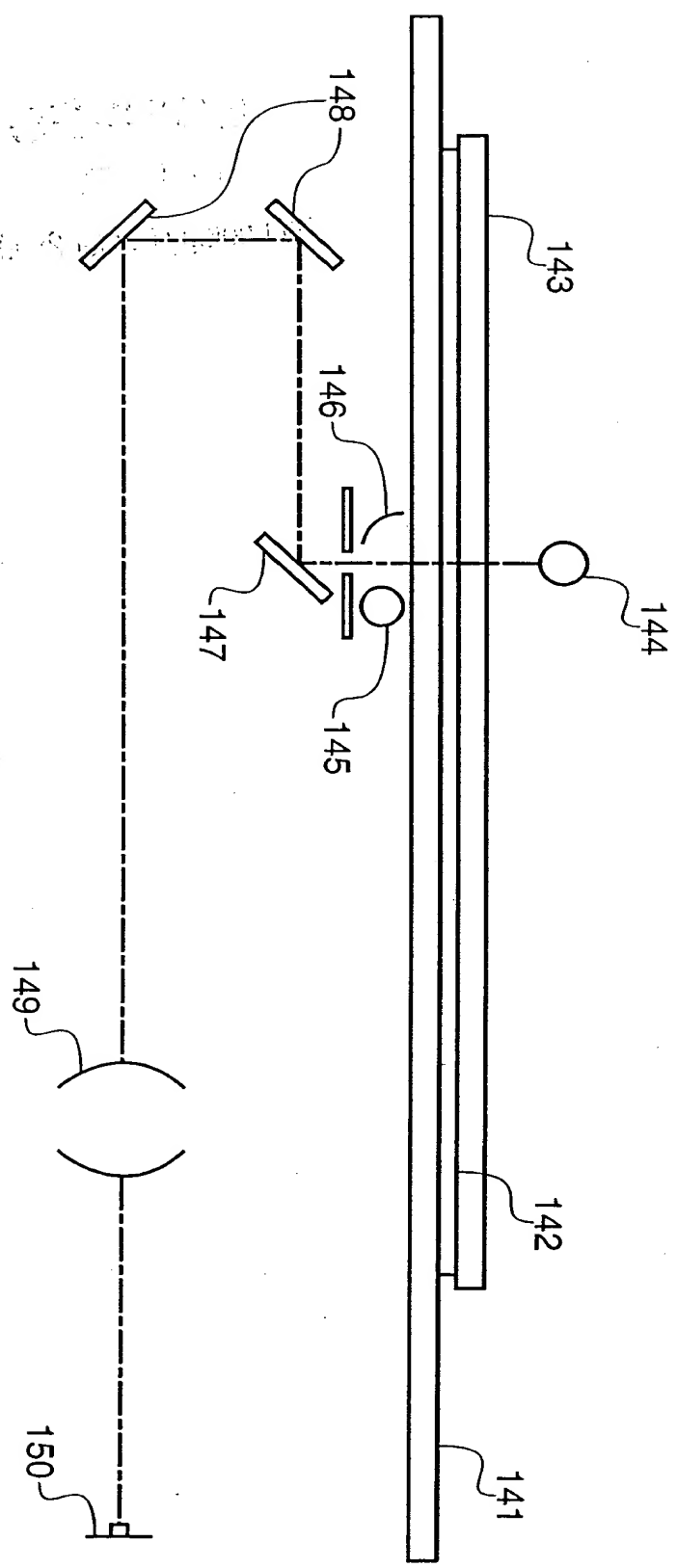
**FIG. 33**

-- Prior Art --

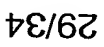


-- Prior Art --

FIG. 28



--Prior Art--



-- Prior Art --